

PATENT
Serial No: 10/614,862
Docket No: 29284-595

REMARKS

Claims 1-27 and 54 are pending. By this amendment, claims 1-10 and 12-27 are amended, claims 2, 6 and 28-53 are canceled, and new claim 54 is added.

The Office Action rejects claims 1-14 under the judicially created doctrine of obviousness-type double patenting over claim of applications 10/614,859, 10/614,860, 10/614,861, 10/614,863 and 10/614,864. It is submitted that this rejection for each of these applications should be provisional, until one of the applications is otherwise ready to issue. That application should then be allowed to issue, and the double patenting rejection, if still in affect, should be made non-provisional, and applicants will then consider whether to submit a terminal disclaimer.

The Office Action rejects claims 1-53 under 35 USC 103 over O'Brien (US Pat. 5,247,638 in view of Stallmo (US Pat. 5,526,482). This rejection is respectfully traversed.

The storage system recited in claim 1 includes at least one first path coupling a first channel unit of said channel units to a first cache unit of said plurality of cache units, at least one second path coupling said first channel unit to a second cache unit of said plurality of cache units and not being in common with said first path, at least one third path coupling a second channel unit of said channel units to said first cache unit, and at least one fourth path coupling said second channel unit to said second cache unit and not being in common with said third path.

With this structure the “transfer of the data between the first channel unit and the first cache units”, the “transfer of data between the first channel unit and the second cache units”, the “transfer of data between the second channel unit and the first cache units”, and the “transfer of data between the second channel unit and the second cache units” can be executed in parallel. So, the process of reading/writing data transferred between the host computer and the first channel unit from/to the first cache unit, the process of reading/writing data between the host computer and the first channel unit from/to the second cache unit, the process of reading/writing data transferred between the host computer and the second channel unit from/to the first cache

unit, and the process of reading/writing data transferred between the host computer and the second channel unit from/to the second cache unit can be executed efficiently.

In contrast, O'Brien does not disclose or suggest the plurality of cache memories. So, O'Brien does not disclose or suggest the plurality of paths of the present invention connecting the plurality of cache memories and the channel unit or the control unit.

Further, Stallmo discloses a plurality of copyback cache storage units, but only controller 3 is disposed among CPU 1, the copyback cache storage units and the storage control unit 7 to transfer the data. However, if it is assumed that the controller 3 corresponds to the first channel unit, Stallmo does not disclose or suggest the relation of the claimed invention among the second cache unit, the plurality of cache memories and the plurality of paths. Stallmo does not disclose or suggest the claimed limitation regarding the other plurality of channel units and that the plurality of paths connecting the channel unit and the plurality of cache memories are not in common. Similarly, if it is assumed that the controller 3 corresponds to the claimed second channel unit, Stallmo does not disclose or suggest the relation among the first cache unit, the plurality of cache memories and the plurality of paths. Further, if it is assumed that the controller 3 corresponds to the claimed control unit, Stallmo does not disclose or suggest the relation among the plurality of channel units, the plurality of cache memories and the plurality of paths. Accordingly, Stallmo cannot attain the results described above of the claimed invention.

Even if O'Brien and Stallmo are combined, and it is assumed that O'Brien discloses structure that may correspond to the channel unit and the control unit, Stallmo discloses only structure corresponding to one of the first channel unit, the second channel unit or the control unit of the claimed invention. Thus, it is unclear which portion of O'Brien the relation between the plurality of copyback cache storage units and the controller 3 of Stallmo would correspond to. Further, there is no motivation for the asserted combination.

Even if it is assumed that the multipath storage director 110 of O'Brien corresponds to the controller 3 of Stallmo, O'Brien does not disclose or suggest the concept of the relation between the plurality of channel units, the plurality of cache memories and the plurality of paths.

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In addition, even if it is assumed that the cluster control 111 of O'Brien corresponds to the controller 3 of Stallmo, O'Brien does not disclose or suggest the concept of the relation between the plurality of channel units, the plurality of cache memories and the plurality of paths. This is because O'Brien does not disclose structure corresponding to the plurality of cache memories and the channel unit.

In addition, even if it is assumed that the disk drive manager 102 of O'Brien corresponds to the controller 3 of Stallmo, O'Brien does not disclose or suggest the concept of the relation between the plurality of channel units, the plurality of cache memories and the plurality of paths. This is because O'Brien does not disclose structure corresponding to the plurality of cache memories and the channel unit.

As discussed above, even if combined, the resulting combination will not result in the claimed invention as described in claim 1, and there is no motivation for the asserted combination. Accordingly, claim 1 and all claims dependent therefrom would not have been obvious over the applied references. New claim 54 is allowable for at least the same reasons.

For the above reasons, reconsideration of the rejections and an indication of allowable subject matter is requested. Should there be any questions, the Examiner is invited to telephone the undersigned.

The Commissioner is authorized to charge fees for this matter regarding 37 CFR §1.16,

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§1.17 and §1.136 to Kenyon & Kenyon Deposit Account No. 11-0600. A duplicate of this sheet is attached.

Respectfully submitted,



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Dated: March 16, 2005

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